

BASSI EDLIN
HUIE & BLUM

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September 14, 2020

Magistrate Judge Oliver

Re: ***Santa Clarita Valley Water Agency v. Whittaker Corporation***
United States District Court Central District Case No. 2:18-CV-6825-GW (RAOx)
Our Client: WHITTAKER CORPORATION

**WHITTAKER'S LETTER BRIEF REGARDING DOCUMENTS CONSIDERED BY EXPERT
DAWSON**

Dear Magistrate Judge Oliver:

There can be no dispute as to what the documents are that Whittaker Expert Gaynor Dawson considered. These documents were sent to and downloaded by Plaintiff, via a sharefile on August 27, 2020. Exhibit A. Plaintiff is in possession of the documents considered by Mr. Dawson. At his deposition, Mr. Dawson will testify that he considered each and every one of the documents identified in his expert report.

Plaintiff's problem with Mr. Dawson's report has never been in identifying the documents identified in his expert report. Even before the documents were sent to Plaintiff, they were identified by bates stamp number. Dawson Expert Report, Exhibit B, at Attachment A. Rather, as stated in Plaintiff's August 28, 2020 email, Plaintiff contends that it is "entitled to have an expert report from Mr. Dawson that identifies the documents he relied on." However, that is not what the FRCP requires. FRCP, Rule 26(a)(2)(B)(ii).

A report that only identifies the documents that Mr. Dawson relied on would violate Rule 26. The FRCP requires that the expert disclose "the facts or data considered . . ." by the expert. Id. That is exactly what Mr. Dawson did. He reviewed and considered every document identified in his expert report. Plaintiff's ultimate objection to the Report is that Mr. Dawson considered too many documents. Mr. Dawson's opinions relate to the custom and practice of Whittaker in managing perchlorate and volatile organic compounds at the Whittaker Site. For instance, he opines that there is no evidence that significant quantities of perchlorate or volatile organic compounds were buried at the Site. Dawson Expert Report, Exhibit B, at pp 5, 7-9. That is the reason so many documents needed to be considered. He had to review documents in which any evidence of burying of wastes would have appeared in order to opine no evidence of significant quantities of contaminants of concern had been buried at the site.

Plaintiff's argument is disingenuous given the history of this litigation. In the original litigation between the Parties, Plaintiff was sanctioned for failing to disclose documents considered by their expert. The Court rejected the argument put forward by two of the same attorneys representing Plaintiff here, Mr. Gee and Mr. Fudacz, that all that was required to be produced were the documents actually relied on. The Court stated:

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Plaintiffs argue that information about Slade's investigation need not be disclosed because (1) Plaintiffs do not intend to use Slade's results to support their claims or defenses under Rule 26(a) (1)(B) and (2) because Drs. List and Todd did not rely on Slade's results in reaching their conclusions. . . . [T]he plain language of Rule 26(a)(2)(B) requires disclosure of data "considered by" Plaintiffs' experts—not just data actually "relied on." See Fed. R. Civ. Pro. 26 Advisory Committee's Notes (1993 amendment) ("[L]itigants should no longer be able to argue that materials furnished to their experts to be used in forming their opinions—whether or not ultimately relied upon by the expert—are privileged or otherwise protected from disclosure when such persons are testifying or being deposed."); *Southern Union Co. v. Southwest Gas Corp.*, 180 F.Supp.2d 1021, 1059–60 (D.Ariz.2000) (quoting Advisory Committee's Notes).

Castaic Lake Water Agency v. Whittaker, 2002 WL 34700741 (C.D. Ca October 25, 2002), *10

Plaintiff seeks to make much of Mr. Dawson use of the words "Materials Reviewed and Relied Upon" in his Report. Dawson Expert Report, Exhibit B, at 14. Yet, this is exactly what considered means. Considered "is intended to encompass: (a) all documents and oral communications relied upon by the experts in formulating their opinions; and (b) all documents and oral communications reviewed by the experts in connection with the formulation of their opinions, but ultimately rejected or not relied upon." Baxter Diagnostics, Inc. v. AVL Scientific Corp., 1993 WL 360674 (C.D. August 3, 1993), *1. Experts are required to disclose "whatever materials are given him to review in preparing his testimony, even if in the end he does not rely on them in formulating his expert opinion, because such materials often contain effective ammunition for cross-examination. Committee Notes to 1993 Amendments to FRCP. 26(a)(2); Karn v. Ingersoll-Rand Co., 168 F.R.D. 633 (N.D.Ind.1996).

Over a million pages of documents have been produced by the Parties in this matter and Plaintiff's complaint that Mr. Dawson had to review 7,600 baste stamped pages borders on ridiculous. If Mr. Dawson had not disclosed the entirety of the documents that he considered and then testified in his deposition that had reviewed them, Plaintiff would rightfully be asking to redepose him or for other sanctions. Whittaker's retort that he considered the documents but did not rely on them would have been rejected as easily as Mr. Gee's identical argument in the prior Whittaker decision. Castaic Lake Water Agency, 2002 WL 34700741 at *10.

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Magistrate Judge Oliver
September 14, 2020
Page 3

Whittaker and Mr. Dawson have complied with the FRCP and Plaintiff's motion should be denied.¹

Respectfully submitted,

BASSI, EDLIN, HUIE & BLUM LLP

A handwritten signature in blue ink, appearing to read 'F. Blum', with a long horizontal flourish extending to the right.

FRED BLUM
Attorneys for Whittaker

¹ Plaintiff's reference to the documents reviewed by Dr. Steffey should also be rejected. Dr. Steffey is a statistician who performed a statistical analysis of testing data for several compounds on multiple wells, which were taken once a week over an almost ten year period. Defendants produced an amended "Data and Information" considered as well as a folder re-producing the documents identified in the Data and Information considered, which almost exclusively included spreadsheets with specific data authored and produced by Plaintiff.

EXHIBIT A

Herschel A. Winheld

From: Matthew P. Bassi
Sent: Thursday, August 27, 2020 4:00 PM
To: Joshua Edlin
Subject: FW: Kameran Hedayat has downloaded files from the folder 'Gaynor Dawson'

Matthew P. Bassi
Litigation Support Specialist

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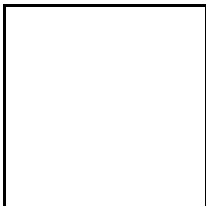
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From: noreply@sf-notifications.com [mailto:noreply@sf-notifications.com]
Sent: Thursday, August 27, 2020 3:57 PM
To: Matthew P. Bassi <mpbassi@behblaw.com>
Subject: Kameran Hedayat has downloaded files from the folder 'Gaynor Dawson'



Matthew,

Kameran Hedayat downloaded files from a "Send Files" link at 8/27/20 3:56P:

dtrowbridge@behblaw.com > Gaynor Dawson

Name: 3.9.20 Documents

Size: 202.08 MB • **Downloaded:** 8/27/20 3:56p

User: Kameran Hedayat [khedayat@nossaman.com]

Name: Alibrandi - 2003-05-28.pdf

Size: 8.82 MB • **Downloaded:** 8/27/20 3:56p

User: Kameran Hedayat [khedayat@nossaman.com]

Name: Revised RCRA Closure Plan 4.1987.pdf

Size: 12.54 MB • **Downloaded:** 8/27/20 3:56p

User: Kameran Hedayat [khedayat@nossaman.com]

Name: Closure and Post Closure Plan.PDF

Size: 2.34 MB • **Downloaded:** 8/27/20 3:56p

User: Kameran Hedayat [khedayat@nossaman.com]

Name: Lardiere - 2003-08-27.pdf

Size: 1.51 MB • **Downloaded:** 8/27/20 3:56p

User: Kameran Hedayat [khedayat@nossaman.com]

Name: Sorsher - 2003-03-02.pdf

Size: 5.69 MB • **Downloaded:** 8/27/20 3:56p

User: Kameran Hedayat [khedayat@nossaman.com]

Name: Gaynor 7.16.20

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User: Kameran Hedayat [khedayat@nossaman.com]

Name: Multi-Media Complaine Inspection Manual 7.1989.pdf

Size: 13.61 MB • **Downloaded:** 8/27/20 3:56p

User: Kameran Hedayat [khedayat@nossaman.com]

Name: SCVWA TAC.pdf

Size: 247.76 KB • **Downloaded:** 8/27/20 3:56p

User: Kameran Hedayat [khedayat@nossaman.com]

Name: EPA RCRA Compliance-Enforcement Guidance Manual Policy Compendium 9.28.....pdf

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User: Kameran Hedayat [khedayat@nossaman.com]

Name: (EPA) Resource Conservation & Recovery Act Inspection Manual 9.1982.pdf

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User: Kameran Hedayat [khedayat@nossaman.com]

Name: SCVWA Resp. to Whittaker Rogs, S1.pdf

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Name: Progress report.pdf

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User: Kameran Hedayat [khedayat@nossaman.com]

Name: DOD Contractors' Safety Manual for Ammunition, Explosives, etc. 10.1968.pdf

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Name: GD 4.6.20

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Name: SCVWA 30(b)(6) Notice.pdf

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Name: Thompson - 2003-04-15.pdf

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User: Kameran Hedayat [khedayat@nossaman.com]

Name: Simmons - 2002-03-11.pdf

Size: 6.79 MB • **Downloaded:** 8/27/20 3:56p
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Name: 3.27.20 Docs for G Dawson

Size: 313.97 MB • **Downloaded:** 8/27/20 3:56p
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Name: Wenck - 2006-10-27.pdf

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Name: (EPA) RCRA Inspection Manual 4.22.88.pdf

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Name: Peach - 2002-11-21.pdf

Size: 7.74 MB • **Downloaded:** 8/27/20 3:56p

User: Kameran Hedayat [khedayat@nossaman.com]

Name: SCVWA Original Complaint.pdf

Size: 4.82 MB • **Downloaded:** 8/27/20 3:56p

User: Kameran Hedayat [khedayat@nossaman.com]

Name: RCRA Personnel Training Guidance Manual 9.1980.pdf

Size: 4.81 MB • **Downloaded:** 8/27/20 3:56p

User: Kameran Hedayat [khedayat@nossaman.com]

Name: GD 4.13.20

Size: 170.04 MB • **Downloaded:** 8/27/20 3:56p

User: Kameran Hedayat [khedayat@nossaman.com]

Name: Abdun-Nur - 2002-03-25.pdf

Size: 9.21 MB • **Downloaded:** 8/27/20 3:56p

User: Kameran Hedayat [khedayat@nossaman.com]

Name: (EPA) RCRA Permit Quality Protocol (Draft) 9.1988.pdf

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User: Kameran Hedayat [khedayat@nossaman.com]

Name: Wenck - 2002-03-21.pdf

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User: Kameran Hedayat [khedayat@nossaman.com]

**Name: DOD Contractors' Safety Manual For Ammunition and Explosives
09.1997.pdf**

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User: Kameran Hedayat [khedayat@nossaman.com]

**Name: DOD Contractors' Safety Manual For Ammunition and Explosives
03.1986 (1)....pdf**

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User: Kameran Hedayat [khedayat@nossaman.com]

Name: DOCUMENTATION REPORT - SWMU.pdf

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EXHIBIT B

Santa Clarita Valley Water Agency

v.


Whittaker Corporation and Does 1-10 Inclusive

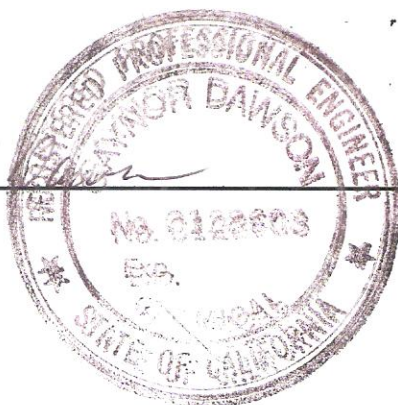
EXPERT REPORT


OF

GAYNOR DAWSON

GWD CONSULTING, LLC
64209 E. Grover PR NE
WEST RICHLAND WA 99353


Gaynor W. Dawson




1 Aug 2020

I. Introduction

My name is Gaynor W. Dawson. I am the President of GWD Consulting, LLC and I have over 50 years of experience in environmental engineering research and consulting. I have been asked by counsel for Defendants to formulate opinions and to prepare an expert report with respect to the operations and potential releases of chemicals resulting in contamination on Whittaker Corporation's former Bermite facility at 22116 West Soledad Canyon Road, Santa Clarita, California.

In order to help the reader understand the basis for my opinions, I begin with a summary of my background and experience. Special emphasis is placed on direct experience with the production of rockets and missiles, contaminant investigations and removal, and the regulatory programs under which environmental restoration is performed. These materials are provided in Section II.

Section III describes the findings and conclusions I have reached as a result of my review of site-related materials.

Section IV provides the background and data on which those findings and conclusions are based.

Attachment A is a list of all materials I reviewed in developing this report. Attachment B is a copy of my current curricula vitae and includes a list of my publications in the last ten years. Attachment C is a listing of all the cases in which I have testified either in deposition or at trial in the last six years.

I am being compensated on this matter at a rate of \$225/hour. My compensation is not contingent in any way on the opinions I provide.

II. Qualifications

Credentials

I currently hold four professional positions with regard to environmental work: 1) I am the President of GWD Consulting, LLC where I perform specific consulting assignments; 2) I am a part-time consultant with Sapere Consulting for which I serve on review panels to advise the U.S. Department of Energy (DOE) on the efficacy of proposed remedial action plans at DOE facilities; 3) I am the senior technical advisor at Hurricane Industries LLC, a Service-Disabled, Veteran Owned Small Business specializing in the closure of abandoned mines and performance of environmental remediation work such as soil and groundwater restoration; and 4) I am a Subject Matter Expert for TechSource, Inc. for whom I perform environmental analyses and consulting assignments such as a recent review of investigation and remedial action activities at the Los Alamos National Laboratory. I am a Registered Professional Chemical Engineer in the states of California and Washington, and a Board Certified Environmental Engineer in the American Academy of Environmental Engineers. I am a member of the Environmental Division of the American Institute of Chemical Engineers. I have also served on the editorial board of the Journal of Hazardous Materials and was one of the original members of the National Solid Waste

Management Association's Institute of Waste Technology's Chemical Waste Committee. I have written over 100 books, peer-reviewed papers, articles, and governmental reports on environmental issues since 1969.

I hold a Bachelor's Degree in Chemical Engineering from Stanford (1969) and a MBA from the University of Washington (1975). My MBA thesis was based on the use of economic principles to develop environmental regulations. I have served as an instructor for numerous environmental training courses sponsored by the U.S. Environmental Protection Agency (EPA), state agencies, the U. S. Department of Energy (DOE), and the U. S. Department of Defense (DOD).

Employment History

After receiving my undergraduate degree, I took employment in the Water and Waste Section at Battelle's Pacific Northwest Laboratories where I conducted environmental research and studies for 16 years. Specific assignments included the development of the background documents for the Report to Congress on "Spillage of Hazardous Polluting Substances" and "The Scope of the Nation's Hazardous Waste Management Needs" as well as development of the Oil and Hazardous Materials Technical Assistance Data System (OHM-TADS) that was used as a technical resource by On-Scene Commanders in response to oil and chemical spills throughout the United States. Prior to leaving Battelle, I was the Director of the Office of Hazardous Waste Management.

In 1985, I became Vice President of ICF Technology, Inc., an environmental consulting firm which eventually became ICF Kaiser. I managed the Northwest offices for ICF Kaiser, where I also served as the Manager of Technical Services. I conducted consulting work and oversaw the work of a staff of up to 60 engineers and scientists engaged in a full breadth of environmental activities. I conducted technical audits of environmental work performed by the entire staff of the company and evaluated technologies for use by the firm. During my tenure at ICF Kaiser, I performed and managed a number of projects related to the characterization and restoration of sites contaminated by releases from the production of solid and liquid fueled rockets including remedial investigations and forensic studies at the Aerojet site in Ranch Cordova, California and the UTC site in Morgan Hill, California. Much of my work was focused on contamination from losses of chlorinated solvents such as perchloroethylene (PCE) and trichloroethylene (TCE).

In 1994, I founded EG&G Environmental, a wholly-owned subsidiary of EG&G, Inc. EG&G Environmental specialized in the commercialization of environmental technology where, in addition to my duties as the chief executive of the company, I continued to conduct consulting work and provide training for the federal government. While managing EG&G Environmental, I began performing peer review work for what became the U.S. Army Environmental Command during which I reviewed plans and completed restoration work on both Army installations and ammunition plants.

In 1997, I became a vice president with Project Performance Corporation (PPC). In addition to assisting the federal government in devising strategies for site restoration and implementing those strategies, my

staff and I performed remedial actions on contaminated private and public sector sites. During that time, I performed forensic analyses on additional rocket production sites operated by Aerojet in Azusa, California and Lockheed in Redlands, California. I also continued my work assisting the U.S. Army with the review of environmental contamination and restoration efforts at military installations and ammunition production sites.

In 2004, PPC sold my environmental technology group to CALIBRE, for which I continued performing work at private and public sector sites. My activities included remediation of contaminated sites and the implementation of the Performance-Based Remediation Programs for the U.S. Army Environmental Command and the Air Force Civil Engineering Center.

I left CALIBRE in 2014 to establish GWD Consulting and joined Sapere Consulting as a part-time consultant. In 2016 I helped establish Hurricane Industries to provide remedial action technology throughout the U.S. In 2019, I took an additional position with TechSource, Inc.

Experience

During the more than 50 years in which I have been employed in the environmental profession, I have performed a great amount of work in the areas of toxic and hazardous substance management in general, with special emphasis on releases of hazardous substances and the technology required to mitigate the effects of those releases in soil and groundwater. A significant percentage of my work has involved chlorinated solvents, hydrocarbons, explosive compounds, propellants and industrial organic chemicals – including those compounds involved in this current engagement for Defendants. In addition to having worked as an environmental professional throughout the 1970s, I have conducted a number of retrospective studies which added knowledge of waste management practices in the period 1940 to 1970.

I was awarded a Coin of Excellence by the U.S. Army Environmental Command for my work in which my team scoped out and determined the cost of remedial action for contaminated sites at Army installations. In that effort, I reviewed data on, and technology at thousands of sites on nearly 100 Army installations and munitions production sites nationwide. The successful conclusion of that work led to a similar effort for the U.S. Air Force for which our team was once again awarded a Coin of Excellence.

I have been designated as an expert witness on remedial action by the Department of Justice and private law firms in federal and/or state cases in Arizona, California, Washington, Utah, West Virginia, Texas, New Jersey, New York, South Carolina, Indiana, Wisconsin, Mississippi, and Illinois.

A copy of my current curricula vitae is appended to this report as Attachment B.

III. Findings and Conclusions

In reaching the opinions expressed here, I used and applied industry-accepted methodologies in the manner I have learned through my education and professional experience and practices. After review of the materials noted in Attachment A and consideration in light of my experience and knowledge in my areas of expertise, I hold the opinions provided in this report to a reasonable degree of scientific certainty.

Opinion 1

The overwhelming majority of releases of perchlorate and chlorinated solvents at the Bermite site were associated with the production of Sidewinder and Chaparral missiles, and to a lesser extent. JATO rockets.

Opinion 2

I have seen no clear evidence that the missiles and rockets produced at the Bermite facility were not made in accordance with contract requirements mandating adherence to military specifications and the US Department of Defense DOD Contractors' Safety Manual for Ammunition, Explosives and Related Dangerous Materials dated October 1968 or their revisions released in 1986 and 1997, which would have constituted due care and the state of practice for those operations in those time frames.

Opinion 3

There is no indication that any significant quantities of perchlorate or chlorinated solvents were intentionally buried on site or in proximity to the Bermite facility.

Opinion 4

The most likely sources of significant perchlorate losses at the Bermite facility were: 1) Atmospheric dusts and washdown water from the operation of grinding operation bag houses; and 2) Waste water from hog out operations and JATO production.

Opinion 5

The most significant source of chlorinated solvent losses at the Bermite facility was effluent from the water separator unit on vapor degreasers used in the production of missile motors, while smaller contributions were made from solvent bearing wash waters.

IV. Background and Data

Opinion 1

In his 2010 declaration, Dr. Jay Brigham, an expert in historical research (Case No.: CV-09-1734 AHM (RZx)) after exhaustive research in the archives, found that there was no evidence suggesting that perchlorate or trichloroethylene (TCE) were used on the Bermite site during World War II. According to Robert Zoch, prior to 1959, only small amounts of perchlorate were used on site. After 1959, production of Jet Assisted Take Off (JATO) rockets included use of perchlorates, but the usage was small in comparison with what was required for subsequent production of over 25,000 Sidewinder and Chaparral missiles. (Zoch, 2009, page 13)

In its Findings of Fact and Conclusions of Law during the Post-Trial Liability Phase, the United States District Court Central District of California (Case No. : CV 09-01734 AHM (RZx)) concluded that the Bermite facility handled in excess of 1.4 million pounds of ammonium perchlorate in the production of Sidewinder and Chaparral missiles (page 8 of 57) and the recovery/rehabilitation of over 1100 Chaparral motors (page 11 of 57).

Chlorinated solvent use including first TCE (up until the late 1970s) then perchloroethylene (PCE) (Authorized in late 1970s) and then 111, trichloroethane (TCA) (authorized in 1982) increased significantly with the production of Sidewinder and Chaparral missiles due to solvent application as a degreasing agent for rocket motors and in the cleaning of mixers and related equipment employed in rocket production (Findings of Fact and Conclusions of Law, Case No. : CV 09-01734 AHM (RZx) page 9 of 57). This is consistent with my experience performing investigations and forensic analyses on solid rocket sites operated by Aerojet, UTC and Lockheed. These solvents were often detailed in the military specifications (Mil Specs) with which contractors were required to comply as a key part of the production contract.

Given this evidence, it is my opinion that the overwhelming majority of releases of perchlorate and chlorinated solvents at the Bermite site were associated with the production of Sidewinder and Chaparral missiles, and to a lesser extent. JATO rockets.

Opinion 2

In its post-trial deliberations for assigning liability at the Bermite site, the US District Court for the Central District Court of California concluded: *Bermite was required to comply with the Department of Defense Contractors' Safety Manual for Ammunition, Explosives and Related Dangerous Materials DOD 4145.26M ("DOD Safety Manual") with respect to all contracts Bermite entered into with the United States Military. 2/26/10 AM Tr. 717:13-719:9 (Tamada); Calkins Decl. ¶ 93. The surviving rocket motor contracts either expressly stated that Bermite "shall comply with DOD 4145.26M" or incorporated ASPR 7-104.79(a) by reference. ASPR 7-104.79(a) mandated that a contractor "shall comply" with the DOD Safety Manual. King Depo. 73:7-75:5; 2/26/10 AM Tr. 717:13-719 (Findings of Fact and Conclusions of Law, Case No. : CV 09-01734 AHM (RZx) page 33 of 57).* In addition, those contracts required all products being produced for and provided to the US Military would be produced in accordance with the appropriate Mil Specs, which would have specified the materials to be used, the procedures to be followed, and the precise sequence of steps required.

As noted by the US District Court of Central California: *From at least 1968 to 1986, the Defense Contractor's Administrative Services, known as the "DCAS," was the arm of the United States Government charged with ensuring that contractors complied with the DOD Safety Manual.* 2/26/10 AM Tr. 719:22-720:3 (Tamada: *ensuring compliance with the DOD Manual was one of DCAS' "primary responsibilities"*); King Depo. 29:2-25, 43:3-46:5.192. DCAS maintained an office at the Site, and oversaw operations on every shift, including when Bermite employees were working overtime. Calkins Decl. ¶¶ 87-88. (Findings of Fact and Conclusions of Law, Case No. : CV 09-01734 AHM (RZx) page 35 of 57). Once again, these requirements and the presence of inspectors from DCAS are consistent with all of the materials I have reviewed and knowledge gained from working at four major solid rocket production plants as well as multiple Government Owned, Contractor Operated (GOCO) Army ammunition production plants throughout the United States.

Therefore, it is my opinion that the missiles and rockets produced at the Bermite facility were made pursuant to contract requirements mandating adherence to military specifications and the US Department of Defense DOD Contractors' Safety Manual for Ammunition, Explosives and Related Dangerous Materials dated October 1968 or their revisions released in 1986 and 1997, which would have constituted due care and the state of practice for those operations in those time frames.

Opinion 3

As noted by the US District Court of Central California, *The United States Government required the destruction of waste explosives by specified means because such materials implicated national defense and the Government could not allow such materials to "fall into the wrong hands."* 3/2/10 AM Tr. 916:17-23 (Wright: *"you don't want those energetic items to fall into the wrong hands."*). *The disposal (by destruction) of excess N-29 propellant was required by the Government in order to "demilitarize" the propellant.* 3/2/10 AM Tr. 921:18-922:23 (Wright). *Section 1503 of the DOD Safety Manual authorized destruction by only four methods: dumping at sea, detonation, neutralization or burning.* 3/2/10 AM Tr. 916:24-917:8 (Wright) and Tr. Ex. 61.0162. 187. *From 1968 through 1986, Bermite's only viable option for complying with the DOD destruction requirement with respect to its excess or waste propellant was through burning because dumping at sea was no longer permitted (3/2/10 AM Tr. 917:20-918:2 (Wright)), neutralization was not effective (3/2/10 AM Tr. 920:4-921:20(Wright)), and detonation was not permitted in California (Tr. Ex. 185; King Depo. 73:4-6). With respect to the burning of waste, the 1968 DOD manual contained numerous provisions mandating how the contractor could conduct burnings (e.g., not in containers or on concrete, with fire equipment readily available), where the contractor could conduct burns (e.g., minimum distances from buildings, prevailing winds must blow sparks in specified direction) and when the burns could occur (non-windy days and not within 24 hours unless the burn area is soaked with water). The contractor did not have the discretion to deviate from these mandates.* 3/2/10 AM Tr. 925:11-931:6 (Wright). Trial Ex. 61.0162-0167. (Findings of Fact and Conclusions of Law, Case No. : CV 09-01734 AHM (RZx) page 34-35 of 57) As such, burial of propellants and other explosive and ignitable materials such as ammonium perchlorate was prohibited and compliance was monitored by the on-site DCAS inspectors.

While there is clear evidence that contaminated waste materials had been dumped or buried on site over the history of operations at the Bermite facility, there is no evidence of direct burial of concentrated propellants, explosives, solvents or hazardous wastes as defined under the RCRA. In his expert report, David Bauer opines that perchlorates were buried at numerous locations around the

facility. He attempts to support that opinion by listing the areas where perchlorate was observed in site soils as follows (Bauer Expert Report 2010):

- Building 31 – 30 cubic yards of fill containing up to 810 mg/Kg soil (ppm)
- East Fork Landfill Area – 66,000 cubic yards containing up to 716 µg/kg soil (ppb)
- Hula Bowl I – fill present with up to 504 µg/kg soil (ppb)
- Hula Bowl IV - fill present with up to 1,970 µg/kg soil (ppb)
- OU5 Area 2 Landfill - fill present with up to 590 µg/kg soil (ppb)
- Burn Valley 101,000 cubic yards with up to 316 mg/kg soil (ppm)
- Soil beneath the 317 impoundment found to contain up to 171 mg/kg soil (ppm)

Two of these sites clearly have nothing to do with the burial of wastes: 1) The burn area and 2) The soil beneath the impoundment. Indeed, the burial ground was used to burn propellant waste in accordance with DOD requirements: *The grounds should be well packed earth and shall be free from large stones and deep cracks in which explosives might lodge. Explosive materials shall not be burned on detonated on concrete mats.* (US Department of Defense DOD Contractors' Safety Manual for Ammunition, Explosives and Related Dangerous Materials October 1968). Perchlorate residuals are common at burial sites because the prohibition of confining the propellants and the allowance for burning on bare ground often resulted in incomplete burns. Indeed, I have seen data from test firing stands indicating that even when propellants are burned in the rocket motor, combustion is incomplete and unreacted perchlorate is discharged. The resulting ash and unburned materials are subject to transport and dispersal by the advective currents created by the burning, the wind, and runoff after precipitation events.

The Area 317 impoundment was utilized for storing wastewater. As noted by the US District Court of Central California: *The 1968 DOD Safety Manual mandated that contractors use "sumps, settling bed or leaching pits" to avoid contamination to local streams.* Trial Ex. 61.0159. ((Findings of Fact and Conclusions of Law, Case No. : CV 09-01734 AHM (RZx) page 35 of 57).

None of the seven sites listed contain more than 810 ppm. The propellant produced at the site contained 67.1 percent ammonium perchlorate, which equates to 56 percent perchlorate or 560,000 ppm. That concentration is over 690 times greater than the highest perchlorate concentration observed in any of the "burial" sites. Clearly, neither bulk propellant nor bulk ammonium perchlorate were buried on site.

That is not to say that materials and soil with perchlorate contamination were not left on site. As noted by AME, non hazardous solid wastes were disposed in landfills (Final Remedial Investigation Work Plan Whittaker Corporation Bermite AME August 29, 1995) including wastes from years before Whittaker purchased the property. Due to the lack of perchlorate in excess of one percent in those wastes, they would not have been considered explosive or reactive wastes. These data are consistent with the testimony of James Jisa who stated that perchlorate was never buried on site (Deposition transcript, page 53) and that nothing was transported to the Hula Bowl that was not inert (i.e., not energetic) (Deposition page 134). Similarly, Glen Abdun-Nur testified that a number of areas had been used to discard junk such as broken furniture and scrap, but to his knowledge drums of chemicals or propellant were not buried.

When AME was describing their findings from trenching work, they often recorded metal scrap and debris as indicators of waste disposal activities (Deposition, pages 31, 54 and 80). Solid waste disposed

in the ravines included wastes from times prior to Whittaker's purchase of the facility. While a few drums of materials were ultimately excavated, it is not clear when they were buried. One memo implies that solid wastes could have been deposited over a period of 40 years or more. (Abdun-Nur deposition, page 122 and Exhibit 56) Regardless, the intact drums excavated on site held solidified resin of an unknown composition, but no perchlorate.

When the Resource Conservation and Recovery Act regulations were promulgated in 1980, perchlorate was designated hazardous by virtue of being ignitable and reactive. The US Department of Defense was considered the authority on handling explosive and ignitable munitions and propellants. The working hypothesis for those materials was that their explosive/reactive properties were not present if they were less than one percent (10,000 ppm) of the sample being evaluated. Clearly, soil containing 810 ppm is more than an order of magnitude below that threshold. It should be noted that the so called "mixture rule" was formulated well into the 80s.

The toxic properties of perchlorate were not addressed in regulations until the 1990s, well after the Bermite facility was no longer operating. Health Risk Assessments performed by US EPA in 1992 and 1995 in support of CERCLA resulted in a determination that perchlorate could pose a noncarcinogenic risk to human health if ingested. (California Department of Public Health, History of Perchlorate in California Drinking Water, October 19, 2007 update) Perchlorate was added to the list of "unregulated chemicals for which monitoring is required" under the federal Safe Drinking Water Act in 1999 (California Department of Public Health, History of Perchlorate in California Drinking Water, October 19, 2007 update). California set an MCL for perchlorate in October 2007, (California Department of Public Health, History of Perchlorate in California Drinking Water, October 19, 2007 update).

When the National Priority List was first promulgated under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), the top priority site was the Aerojet solid rocket production site near Rancho Cordova, California. That site was found to have TCE contaminated groundwater and immediate action was required under federal and State oversight. The selected remedy was implemented in the late 1980s and was designed to extract contaminated groundwater from the facility boundary, remove the TCE and re-inject the water to help create a hydraulic barrier to assist in capture of the remaining plume. The treated water contained perchlorate well above current action levels. However, it was not until the 1990s that toxicological evidence suggested that very low concentrations could be harmful to human health. The available analytical methods were not capable of detecting perchlorate at those levels. When both the toxicological data and the analytical methods were developed, it was determined the re-injected water from the Aerojet site was contaminating the water supply of Rancho Cordova.

Given these facts and the nature of perchlorate residuals observed on site, it is my opinion that there is no indication that any significant quantities of perchlorate, chlorinated solvents, or associated hazardous waste as defined under RCRA were knowingly buried on site or in close proximity to the Bermite facility.

Opinion 4

The US District Court of Central California concluded that propellant losses included airborne dust from operations and spillage. The grinders created perchlorate dust, which was collected in either the bag house or fell to the floor. Approximately 150 pounds of ammonium perchlorate dust was collected in each bag house every week. The remaining perchlorate dust on the walls and floors was washed out from the grinding buildings to the bare ground. Every week, approximately 30 gallons of water mixed with ammonium perchlorate was washed out of Building 308, while one drum of ammonium perchlorate dust (150 lbs) was collected each week per grinding unit. (Trial Ex. 281) Perchlorate grinding occurred in Buildings 308, 313, and 314. The 1968 DOD Safety Manual provided that contractors working with water soluble explosives should sweep their floors and then wash them down with a “sufficient volume [of water] to assure complete dissolution of the material.” Trial Ex. 61.0159-61.0160. (Findings of Fact and Conclusions of Law, Case No. : CV 09-01734 AHM (RZx) page 35 of 57)

These findings are consistent with my own forensic work at solid rocket facilities wherein I found that dust from grinding operations accounts for significant losses of perchlorate on the order of 1 to 3 percent of all perchlorate handled on site. The vast majority of those losses is attributed to the state of the art of bag house technology at the time. (1953 Chemical Engineer’s Handbook, McGraw-Hill 3rd Ed) as well as studies summarized in Table 1.

Table 1. Percentage Loss of Industrial Operations in 1968 to 1972 Timeframe (Source: Public Health Service AP-42 and subsequent Environmental Protection Agency Supplements and new editions)

| Operation | Percent Losses | Percent < 44 Microns |
|--|----------------|----------------------|
| Solids Handling – Transfer, Conveying, Storage | | |
| Sand Storage | 1 | |
| Soda Ash Handling | 0.3 | |
| Terminal Grain Elevator | 0.7 | |
| Country Grain Elevator | 1.2 | |
| Brick Production | 1.7 | |
| | | |
| Grinding | | |
| Alfalfa Dehydration | 3 | 100 |
| Lime crushing | 1.6 | 72 |
| Fluorspar | 1 | |
| Gravel Crushing | 1 | |

| | | |
|------------------------------|-----|-----|
| Lead Ore Crushing | 2.5 | |
| Brick Production | 3.8 | |
| Castable Refractory Crushing | 6 | 100 |
| Cement Drying and Grinding | 0.9 | 92 |
| Ceramic Clay Grinding | 3.8 | 95 |
| Gypsum Grinding | 1 | 95 |
| Phosphate Rock Grinding | 1 | 100 |
| | | |
| Baghouse | | |
| AP-42 1968 High | 20 | |
| AP-42 1968 Ave | 5.8 | |
| AP-42 1968 Low | 0.1 | |
| AP-42 1971 High | 10 | |
| AP-42 1971 Ave | 3.2 | |
| AP-42 1971 Low | 0.1 | |

In addition, hog-out operations contributed significantly to perchlorate losses. Once mechanical means of removing expired propellant from rocket motors were replaced by hydraulic means, large streams of water were produced after having been in contact with the propellant in the rocket motors. Perchlorate is readily dissolved from the exposed surfaces of the cast propellant and carried off by the waste stream. That water was subsequently routed to the impoundment near Building 317 from which there are recorded incidents of overflow and leakage through the liner. In addition, the pond was not lined prior to 1980. The large area of contaminated soil beneath the impoundment is consistent with losses of perchlorate containing waters from the impoundment. (Zoch, page 18-19; Peach Deposition) I have investigated sites at solid rocket production facilities that conducted similar hog out operations and these data are consistent with what I observed.

In addition, JATO rockets were machined with a water spray for ignition repression and waste carried with the water discharged into a pond (Zoch p.15) which would have included perchlorate dissolved from the propellant. Perchlorate contamination has also been observed in the area where the mandatory test firing of 950 rockets took place. (McLane August 2009 Report and Findings of Fact and Conclusions of Law, Case No. : CV 09-01734 AHM (RZx) page 29 of 57) In my experience, there is a small but measurable release of unburned perchlorate when rockets are fired.

The loss of dust from grinding and bag house facilities both in atmospheric and washdown releases would have resulted in perchlorate contamination of surface soils in the surrounding areas which would then be subject to further dispersal around the facility.

Given the operational history of the site and the results of investigations performed in the 1980s, 1990s and 2000s, it is my opinion that the most likely sources of significant perchlorate losses at the Bermite facility were: 1) Atmospheric dusts and washdown water from the operation of grinding operation bag houses; and 2) Waste water from hog out operations and JATO production.

Opinion 5

The site investigation results have clearly demonstrated that the vast majority of chlorinated solvent residues found at the facility were located in the subsurface beneath Building 317 and the surrounding areas from which accumulated TCE removed by a soil vapor extraction (SVE) system as of January 1993 totaled ~30,000 lbs (SCVWAVWHIT2019-028939). At Building 300, motor tubes were sand blasted and degreased with solvents including PCE and 1, 1, 1-TCA. Available documentation does not record specific releases and does not report any removal activities. (Remedial Investigation Report) The motor production work would have required the use of a vapor degreaser for preparing the rocket motors prior to casting the propellant. The motor casings would have been sandblasted to clear away imperfections and impurities. The motor would then be cleaned in the vapor degreaser. With the motor casings being roughly four feet long, they would have required a degreaser with a surface area in excess of 600 square inches. Any vapor degreaser with a surface area of 600 square inches or greater, would have included a water separator unit (ASTM 1962 and 1976 "Handbook of Vapor Degreasing", Dow and Diamond Shamrock manuals).

The water separator unit was a gravity separation device designed to capture and separate solvent and water. Solvent was expensive and was captured for return to the solvent reservoir for continued use. Water was removed because excess water accelerated corrosion within the degreaser, leading to costly repair or replacement. Vapor degreasers were typically heated with steam and cooled with cooling water. As such there was ample humidity in an around the vapor degreaser. Water vapor would condense around the cooling coils and was captured in the collection troughs along with condensed solvent. The combined fluids flowed to the separation unit where it would be held as gravity caused the two fluids to separate with water floating above the heavier chlorinated solvent. The lighter water automatically overflowed into a drain while the solvent was routed back into the solvent reservoir.

Most vapor degreasers were installed by the manufacturer and the water discharge units were typically plumbed to a dry well or French drain beneath the ground surface. The water so discharged would be nearly saturated with solvent. As such, it could contain as much as 1,000 mg/L of TCE. Such a discharge arrangement is likely to have been installed at the Bermite site because there were limited sewer lines and they did not serve any production facilities. (Abdun-Nur deposition page 87-88) In a typical degreaser unit, discharging 1-2 gallons per day of separated water would amount to the release of 1.5 to 3 lbs/hr (EPA. 1977. "Control of Volatile Organic Emissions from Solvent Metal Degreasing" EPA-450/2-

77-022, p.5-4). It follows that the 41,000 lbs of chlorinated solvents removed in the vicinity of Building 317 as of June 1995 (W-BRMT 127751) would be consistent with 13,000 – 26,000 hours of operation, or 6- 12 years of production assuming 50 weeks/year of 40 hours/week operations. Sidewinder and Chaparral missile production began in 1966 and had accounted for over 20,000 motors by 1981, a period of 15 years (Zoch 2009, page 14).

While TCE was also present in waters discharged to the Building 317 impoundment, that source and pathway would not have contributed nearly as much solvent to the environmental inventory as the vapor degreaser at that site because the impoundment was operated as an evaporation unit and spray nozzles were added to increase evaporative losses. Chlorinated solvents being much more volatile than water, the solvents would have been preferentially reduced from the water. The degreaser separator water was typically discharged beneath the ground surface and as such, protected from large evaporative losses. Indeed, the water within which the solvent was dissolved would likely have contributed to perched water found beneath the site.

Other, much smaller sources of solvents included sumps such as that at the Area 75 machine shop. When leaks developed in these features, they would introduce solvent directly into the subsurface and thereby minimize evaporative losses.

Given the amounts of solvent found in the area around Building 317 and the concentrations observed and the use of bulk solvents for degreasing, this site would meet two of the three EPA criteria (ground water containing in excess of one percent of the solvents saturated solubility in water and use of large volumes of solvent) for the likelihood of encountering dense non aqueous phase liquids (DNAPL) in the soil and/or groundwater. However, I have seen no indication that DNAPL has been observed anywhere on site. I have seen the same set of circumstances at other sites where vapor degreasers were operated. With the design of the water separation unit, the DNAPL resides in the water separator itself and is contained there while the water is discharged as a highly concentrated effluent. There are no forces of nature that can then reconstitute the pure solvent. As such, concentrations of chlorinated solvents at those sites exceed the one percent rule, but no DNAPL is present and that is indicative that the primary source of losses was the water separator unit.

I have conducted forensic analyses of vapor degreasing operations at three solid rocket facilities as well as other industrial operations and in each case the vapor degreasing losses were consistent with this analysis. As a consequence, it is my opinion that the most significant source of chlorinated solvent losses at the Bermite facility was effluent from the water separator unit on vapor degreasers used in the production of missile motors, while smaller contributions were made from solvent bearing wash waters and leaking sumps.

Of further note is that a different kind of degreaser, a barrel degreaser was used at the Whittaker facility in Hollister, California that was operated in the 1980s. That design is more of a dip tank than a vapor degreaser and as such does not require a water separator. Accordingly, the chlorinated solvent residues at that site are markedly smaller than those at the rocket motor production area of the Bermite site, but consistent with the smaller releases near the Bermite machine shops. (McClane, 2015).

Attachment A
Materials Reviewed and Relied Upon

Bates Stamped Documents

DTSC01796 to DTSC01822

W-BRMT 126260 to W-BRMT 126498

W BRMT 127678 to W BRMT 128062

RF0000185 to RF0000221

SCLLC0113525

SCLLC0113540

SCVWA-0000038 to SCVWA-0000040

SCVWA-0000170

SCVWA-DTSC-PRA-0001622 to SCVWA-DTSC-PRA-0001623

SCVWA-DTSC-PRA-0001691 to SCVWA-DTSC-PRA-0001703

SCVWA-DTSC-PRA-0002829 to SCVWA-DTSC-PRA-0002996

SCVWAVWHIT2019-028934 to SCVWAVWHIT2019-032818

SCVWAWHIT2019-041434 to SCVWAWHIT2019-045208

SCVWAVWHIT2019-066466 to SCVWAVWHIT2019-0664468

S002972 to S0030006

USEXPT007408 to USEXPT007466 (Bauer Expert Report)

WE 0031013

WE0350175 to WE0350179

Reports

Section 5 RFI Scope of Work

Closure and Post-Closure Plan for Bermite Division Whitaker Corporation May 26, 1981

Hydrogeologic Assessment of the Saugus Formation in the Santa Clarita River Valley of Los Angeles County, California, Richard C. Slade, February 1988 Volumes I and II

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Revised RCRA Closure Plan Whittaker Corporation Bermite April 1987

Response To EPA Information Needs Requested By Michael A. Fernandez, P.E. Wenck Associates Inc. November 4, 1987

Groundwater Sampling and Analysis Plan RCRA Groundwater Monitoring Wells WAI August 1988

Documentation Report Solid Waste Management Units Bermite WAI August 1988

Appraisal Report of Whittaker/Bermite Site Prepared for The Anden Group by Joseph J. Blake and Associates Inc. March 1990

Technical Memorandum Results of Ground Water Investigation at Area 75, The Abandoned Highway Well AME Vol I September 29, 1998 and October 13, 1993

Remedial Investigation Work Plan Whittaker Corporation Bermite AME February 1995 Vol III, Vol IV Chapter 2

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Draft Remedial Investigation Report for Whittaker Corporation, Bermite Site, AME January, 1997 Table of Contents, Vols II – III

Technical Memorandum Background Concentrations of Chemicals of Concern and Screening Methodology, Acton-Mickelson-Environmental, Inc. September 25, 1997

Operating History – Areas 25, 26, 34 & 55 – 6/12/98

Porta Bella Development Project Remedial Investigation Work Plan for OU-1 Dn and OU-1 Ds, Final Report, June 21, 1999

Golden Valley Road/ High School Final Environmental Impact Report, Rincon Consultants, March 1999 as well as Draft dated February 1999

Draft Whittaker-Bermite Facility Feasibility Study for Operable Unit 1 (OU1) February 27, 2004

Site-Wide Remedial Investigation Operable Units 2 Through 6 CDM July 7, 2006

Revised Historical Site Assessment Report December 2006, EOD Technology, Inc.

AME Monthly Summary Report September 1993

AME Monthly Summary Report No. 9 July 1995

AME Monthly Summary Report No. 14 December 1995

AME Monthly Summary Report No. 16 February 1996

AME Monthly Summary Report No. 21 July 1996

AME Monthly Summary Report No. 23 September 1996

AME Monthly Summary Report No. 25 November 1996

AME Monthly Summary Report No. 28 February 1997

AME Monthly Summary Report No. 43 May 1998

AME Monthly Summary Report No. 48 October 1998

United States District Court Central District of California Case Documents

Declaration of Robert Zoch Case CV 09-01734 AHM (RZx)

Declaration of Max Calkins and Appendices Case CV 09-01734 AHM (RZx)

Documents Requested By The Court That Establish That Perchlorate Is A CERCLA Hazardous Waste Case No.: 00-12613 AHM(RZx)

Findings of Fact and Conclusions of Law (Liability Phase; Post-Trial
Expert Report of Robert Zoch, June 8, 2003 Case CV 09-01734 AHM (RZx)

Expert Report of Grant Ohland May 13, 2002 Case CV#0-12613 AHM (RZx)

Supplemental Expert Report of Grant Ohland July 29, 2002 Case CV#0-12613 AHM (RZx)

Declaration of Byron Gee November 15, 2018 Case No.: 2:18-cv-6825 GW (RAOx)

Expert Report of David Keith Todd Case No.: 00-12613 AHM (RZx)

Plaintiff Santa Clarita Valley Water Agency's Answers to Defendant Whittaker Corporation's
Interrogatories, Set One Case No.: 2:18-cv-6825 GW (RAOx)

Third Amended Complaint Case No.: 2:18-cv-6825

Declaration of Jay L. Brigham, Ph.D. Case No. CV-09-1734 AHM (RZx)

Expert Report of James F. Nagle Case No. CV-13-01527-EMC (MEJ)

Notice of Deposition of Defendant Whittaker Corporation Pursuant to Federal Rule of Civil Procedure 30(b)(6) Case No.: 2:18-cv-6825 GW (RAOx)

Expert Report of Charles F. McLane III, Ph.D. Case No. CV-13-01527-EMC

Expert Report of Richard Johnson Case No. CV-13-01527-EMC

Declaration of Phyllis Stanin Case No.: 00-12613AHM(RZx) and attached Expert Report

Order Granting In Part and Denying In Part Plaintiff's Motion For Summary Judgement: Order Denying Counter-Claimant Whittaker Corp.'s Motion For Summary Judgement. U.S. District Court for the Central District of California – 272 F. Supp. 2d 1053 (C.D. Cal. 2003) No. CV 00-12613 AHM

Deposition Transcripts

Glen Abdun-Nur March 25, 2002

Joseph F. Alibrfandi May 15, 2003

Edwin P. Granberry December 18, 2006

James Patrick Jisa April 9, 2002

Eric G. Lardiere August 27, 2003

Zoyd Luce March 28, 2002 (to page 172, blank thereafter)

Barbara Mickelson March 3, 2002

Bradley D. Peach November 21, 2002

Archie L. Simmons March 11, 2002

Alan Sorsher February 28, 2003

Phyllis Stanin December 4, 2006

Christopher F. Thompson April 15, 2003

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US Environmental Protection Agency RCRA Permit Quality Protocol (Draft) September 1988

US Environmental Protection Agency LDR Rules and Regulations 1993 September 14, 1993

US Environmental Protection Agency Directive No. 9938.2A RCRA Inspection Manual

US Environmental Protection Agency Directive OSWER Policy Directive #9487.00-2A EPA/530-SW-86-016

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RCRA Personnel Training Guidance Manual (For Owners or Operators of Hazardous Waste Management Facilities) Prepared for US Environmental Protection Agency by AWARE September 1980

US Environmental Protection Agency Multi-Media Compliance Inspection Manual Government Institutes Inc.

US Department of Defense DOD Contractors' Safety Manual for Ammunition, Explosives and Related Dangerous Materials October 1968

US Department of Defense DOD Contractors' Safety Manual for Ammunition and Explosives March 1986, NTIS Publication PB86-176492

US Department of Defense DOD Contractors' Safety Manual for Ammunition and Explosives DOD 4145.26-M September 1997

49 CFR Ch. (10-1-10 Edition) Part 173

40 CFR § 116.4 – Designation of Hazardous Substances and § 302.4 Designation of Hazardous Substances

40 CFR § 401.15 Toxic Pollutants

US Environmental Protection Agency List of Lists EPA 550-B-19-003, June 2019

US Environmental Protection Agency 40 CFR Part 261

Web Snapshot from EPA Web Archive February 24, 2020 Toxic Substance Control Act (TSCA) and Federal Facilities

Web Snapshot from EPA Web Archive June 18, 2020 Initial List of Hazardous Air Pollutants with Modifications

Toxicological Profile For Perchlorates, U. S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, September 2008

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended through P. L. 115-141, Enacted March 23, 2018

Whittaker Manifest Numbers File

Porta Bella Project MSDS file dated 5/99

File of Whittaker Employee Benefits Manual Hazardous Component Safety Data Sheets received in 1986

Application For Permit Sewer Sewage Disposal 1988

Inventory of Materials (Wenck) listed as "Box #3 Complete Folder" and "Box #1 HH"

File labeled Whittaker Bermite Miscellaneous Correspondence "Box #1 FF"

Files labeled Telephone Correspondence Records (1988?) [Wenck] stamped 000142 to 000165; Box #1 HH stamped 000??? and Box #1 Y stamped 000773 to 000879

File labeled Environmental Groundwater Issues Notice of Violation 2-V

File labeled Response to EPA Information Needs [AMV] 3-K stamped 003655 to 003695

File labeled EPA Investigation [AMV] 3-O stamped 003815 to 003901

File labeled Phone Notes 6/22/89 – 9/1/89 [Wenck] 1-U stamped 000648 to 000657

File labeled Sewer Analysis Whittaker/Bermite

File labeled Response to Report of Violations & Schedule for Compliance EPA ID # CAD 064573108 – Date of Doc 9/14/90

File of correspondence with Anden Group over development and bonding for development of property on and near the Bermite site in the early 1990s

File labeled Meeting Notes by DHS – CAD 064573108 Date of Doc 4/5/90

File of letters, notes and articles related to Porta Development circa 1993

Permits, forms and correspondence related to underground storage tank closures 1986 – 1994

Correspondence form Delta Environmental related to destruction of shallow wells in 1991

Proposal For The Management of Hazardous & Non Hazardous Material, Waste Management Of Southern California Inc. April 29, 1996

“EPA’s Pass On Perchlorate Regulation Reduces Lawsuit Risk”, Law 360, July 20, 2020

Attachment B
Curricula Vitae

GAYNOR W. DAWSON

GWD Consulting LLC

EDUCATION

M.B.A., 1975, Business Policy, University of Washington

B.S., 1969, Chemical Engineering, Stanford University

EXPERIENCE

Mr. Dawson is a Senior Chemical Engineer with over 50 years of experience in applying engineering principles to solve environmental problems. He is nationally recognized for his work in the assessment of soil and groundwater systems and the development of innovative technologies. He has conducted extensive work in the areas of hazardous waste management, site restoration, chemical fate and transport, performance-based contracting and wastewater treatment including such benchmark studies as the Kepone incident in the James River, Love Canal, and several Reports to Congress. Mr. Dawson assisted the U.S. Army for more than ten years in the development and implementation of the Performance-Based Acquisition initiative and assisted the U.S. Air Force in developing a similar program from 2010 to 2014. While assisting the government with the design and implementation of performance-based remediation, Mr. Dawson has worked on over 100 different performance-based procurements, served on technical evaluation teams for over 40 different procurements and provided training to the U.S. Army Corps of Engineers, Army Environmental Command, and Air Force Civil Engineering Center. Mr. Dawson is recognized as an innovator in the field, pioneering the use of models, risk assessment, geostatistics, field screening and geophysics in hazardous waste work. He holds two patents for treatment processes and has managed the development and commercialization of recirculating well technology for remediation of ground water. He has served as an expert witness on contaminant transport, site remediation, waste management, and management practices for oil and hazardous materials. He has also taught courses and written numerous publications on these subjects. Mr. Dawson has served on numerous peer review teams for the U.S. Departments of Energy and Defense charged with finding ways to lower costs and accelerate remediation at selected sites and is assisting the Air Force with implementation of performance based contracting for site closure services. He also assisted the Army in transferring to the public closed ammunition plants and Army bases by developing the environmental strategy for cleanup.

Environmental Assessments/Site Investigations

Throughout his career, Mr. Dawson has performed and/or managed a large number of assessments. The hall mark of his work has been the development and application of innovative new tools to accomplish the work. Specific innovations have included the Roving Windows software to evaluate all possible exposure scenarios across diverse sets of soil contamination data, cost-benefit graphical tools for supporting ecological risk assessment, use of geophysical surveys to map hazardous waste sites, application of geostatistics to interpret contamination data, and use of soil vapor analyses to map VOC contamination in heterogeneous sites. Specific projects in which these and other methods have been applied including:

- Restoration of a Site during Investigation, Modesto Steam Cleaner and Laundry. Managed a \$1,200,000 effort to complete site investigation of a dry cleaner site through implementation of remedial actions. Soil vapor extraction was applied to complete the mapping of vadose zone contamination while removing all residual source materials. Over 95 percent of the source was removed in the first year. An innovative approach to enhanced reductive dechlorination was then successfully bench tested for application to the saturated zone. After completion of the field-scale pilot test, less than one percent of the original contamination remains. All work is being conducted on a performance-based contract.
- Performance-Based Remediation, U.S. Air Force Civil Engineering Center. Senior technical advisor to the Air Force on the design, procurement and execution of performance-based remediation. Mr. Dawson evaluated potential sites for inclusion in proposed procurements, helped select the appropriate minimum performance objectives, helped draft the Statement of Objectives, advised technical evaluation teams during proposal reviews, assisted with performance of value assessments, and reviewed deliverables provided by contractors. He also provided training on these matters to Government employees and participated in outreach programs to assist offerors in improving the quality of the proposals they were submitting.
- Performance-Based Contract Support, U.S. Army Environmental Command. Managed the technical support task of this five year contract. Responsible to assembling teams to perform 19 discrete tasks covering a gamut of technical areas including data validation, conceptual site model development, preparation of plans, data mining, technology reviews, and optimization. He personally performed many of the tasks and oversaw all of them in addition to serving as a senior consultant to the Performance-Based Acquisition team for whom he helped evaluate bases for inclusion and established performance objectives.
- Groundwater Evaluation Methods Development, EPA. Managed the \$500,000 subcontract to support the EPA Office of Solid Wastes' Land Disposal Branch in the development of regulations through a prime contract with GCA Corporation. Specific tasks included an analysis of variability in groundwater monitoring systems intended to help develop a more accurate statistical test for monitoring data, and development of manuals for permit writers preparing vertical flow nets and time-of-travel estimates in the unsaturated zone.

- Alternative Remedial Contract, EPA Regions 9/10. Deputy program manager for an ARCs contract in EPA Region 9/10 responsible for coordinating all activities of site managers. Assignments included two monitoring program designs, an RI/FS, oversight for four RI/FSs being conducted by the PRPs, a risk assessment, an operations and maintenance task, and related studies. Firm was consistently rated at the top of all regional contractors for technical and management performance. One factor in the continually high ratings was the development and application of creative approaches that expedited the work and reduced costs such as new field screening techniques and geographic information systems. The ARCs program was a 10-year effort valued at \$70 million.
- Dioxin Migration from Contaminated Soils. Manager and principal investigator for US EPA study to determine how dioxins move in the environment and through meat consumption. Models were developed for use in the exposure assessment phase of risk assessments performed at Times Beach and other nearby contaminated sites in Missouri. Subsequently, Mr. Dawson edited a series of reports on available technologies for destruction of dioxin residues.
- Allocation of Responsibility Among PRPs. Expert witness charged with devising and implementing cost allocation schemes between PRPs at major NPL sites including the Phoenix-Goodyear Airport, the Tacoma Tar Pits, Indian Bend Wash, and the Motor Wheel Disposal Site. All of these efforts are complete and resulted in an equitable settlement without litigation. Mr. Dawson's work has centered on risk-based apportionment and the assignment of costs to those elements of risk which necessitate them.
- U.S. Army Installation Restoration Program, Umatilla and Sacramento, CA. Managed the \$500,000 installation restoration studies at the Umatilla and Sacramento Army Depots. Contaminants of concern included solvents, heavy metals, pesticides, and explosives. These were some of the first large-scale efforts for the U.S. Army Toxic and Hazardous Materials Agency from which subsequent program protocols were developed.
- REM/FIT Assistance, Western U.S. Managed a \$1-million program to support EPA Zone II REM/FIT contractor. Individual assignments included the remedial investigations for the ASARCO East Helena Smelter and Ponder's Corner, the endangerment assessment for Western Processing, the work plan for the Denver Radium Sites, and the focused feasibility study for the LaBounty Landfill. Mr. Dawson's effective and responsive management resulted in more assignments under this contract than were received by any of the other subcontractors in the pool.
- Geophysical Mapping of NPL Site, Love Canal, Niagara Falls, NY. Managed the first demonstration of geophysical survey techniques at a Superfund site (Love Canal). The \$30,000 field project included metal detection, magnetometry, and ground-penetrating radar. Subsequently, these techniques have become routine for hazardous waste site investigations.
- Vapor and Leachate Endangerment Assessment, Midway Landfill. Managed the endangerment assessment for the Midway Landfill evaluating both groundwater and vapor pathways using models to predict exposure levels. This \$100,000 study involved a

complex geology and a range of contaminants including PCBs, chlorinated solvents, metals and hydrocarbons. A creative approach to empirical modeling was devised to deal with limited data on several key pathways.

Facilitation

Mr. Dawson is often asked to provide technical facilitation services through which he assists large groups of technical experts in reaching decisions with regard to the path forward on difficult issues. Recent examples include:

- Paducah Gaseous Diffusion Plant, Paducah, KY. Facilitated application of the Data Quality Objectives Process to development of a consensus work plan for determining the contribution to groundwater contamination attributed to a landfill, a former drainage ditch, and nearby lagoons. Participants included the site owner/operator, the EPA, and the state regulatory authorities in addition to their contractors.
- Lake City Army Ammunition Plant, Kansas City, Missouri. Facilitated development of a work plan to determine the probable source of ground water contamination in the North East Operable Unit and a consensus path forward for interpretation of data derived from implementation of that plan. He has subsequently led a series of Data Quality Objectives sessions on related issues.
- Ft. Pickett. Facilitated development of a work plan to satisfy regulatory concerns over initial investigations and conclude field efforts prior to site closure of the RAC portions.
- Anniston Army Depot. Currently facilitating meetings between the Army, Alabama Department of Environmental Management and U.S. EPA to develop a consensus plan for addressing source areas where dense non-aqueous phase liquids reside in fractured bedrock.

Training

Mr. Dawson is a popular instructor for technical courses including:

- Environmental Restoration Workshops, DOE. Instructor for U.S. DOE's training courses on conducting RI/FS activities, streamlining environmental restoration, monitored natural attenuation, and remedial design/implementation at DOE sites. Presents modules on expedited actions, site characterization, development and evaluation of alternatives, early identification of response actions, remedial design, and uncertainty management. In conjunction with this work, served as reviewer for the DOE guidance manual on conduct of RI/FS activities.

- Groundwater Characterization Seminar, EPA. Featured speaker on site characterization for the EPA CIRI lectures on ground water monitoring presented to all regional EPA offices.
- Groundwater Monitoring Course. Lecturer for two-day training course on groundwater monitoring. This course was extremely popular and resulted in five encores on a request basis. Rating sheets consistently yielded a high performance score.
- Site Prioritization Training. Trainer for conduct of the Multi-media Environmental Priority Assessment System (MEPAS) to rank problems at U.S. DOE facilities.
- Chemical Safety Audits, EPA. Instructor for course on conduct of safety audits at chemical facilities.

Remediation

Mr. Dawson has been active in the development and application of a variety of innovative technologies for restoration of contaminated environmental media. His work includes some of the earliest on such technologies as in-well stripping, in-situ chemical oxidation, TriVAC, and selective sediment decontamination. Specific projects have included:

- US DOE Peer Reviews. Senior member of a peer review team organized by U. S. Department of Energy headquarters to evaluate RI/FS programs at selected facilities, review draft records of decision, and devise strategies to dramatically accelerate cleanup while reducing financial requirements. The reviews were conducted in conjunction with presentation of a new training course which Mr. Dawson helped develop. The course, Principles of Environmental Restoration, was devised to shift emphasis from site investigation to remedial action. As a tenet of the course, regulators and DOE staff were brought together in a core team to develop and implement the new site strategy. Once teams were created in the course, the instructors worked with them to facilitate application to their site. Efforts have been initiated at Oak Ridge, Savannah River, Paducah, Pantex, and the Idaho National Engineering Laboratory. This was a high-profile project that generated significant cost savings. Mr. Dawson also helped develop the Department's strategy for response to contaminated ground water. He assisted headquarters in implementing the strategy at pilot sites. In a related effort, Mr. Dawson assisted the Army in tailoring the groundwater strategy for sites in karst and fractured rock as well as sites with DNAPL.
- Army Performance-Based Contracting Initiative. Mr. Dawson assisted the Army Environmental Command with their performance-based contracting (PBC) initiative for closure of contaminated sites for the last four years. He served on the PBC evaluation team charged with reviewing site operations, recommending installations for implementation, development of the performance work statement, development of independent government cost estimates, and review of bids. Over 40 PBCs were let under this effort. In a related effort, Mr. Dawson conducted site surveys and prepared

preliminary environmental condition of property reports for the Army installations proposed for closure under the 2005 Base Realignment and Closure activities. As a result of the success of the Army program, Mr. Dawson recently assisted the Air Force in developing a strategy for increasing the use of performance-based contracts for their environmental restoration efforts.

- Army Range Management Support. Mr. Dawson assisted the U.S. Army in a number of activities associated with management of training grounds and ranges. Activities included development of a model to predict chemical contaminant loading from training activities and conduct of preliminary assessments and site investigations on abandoned mine sites being integrated into the National Training Site at Ft. Irwin. The latter effort includes development of closure plans for the mines and prospects left on the recently acquired land.
- DOD Peer Reviews. Decision analysis and technology subject matter expert on Army Environmental Center Peer Review team charged with reviewing environmental restoration project plans at installations in order to validate the approaches and/or make recommendations for reducing costs and schedules. Reviews are being conducted on both Base Realignment and Closure (BRAC) sites and active installations throughout the U.S. In addition, Mr. Dawson has been called upon to perform follow-on technical assistance with implementation of panel recommendations. In one embodiment of the follow-on work, Mr. Dawson assists in developing the scope of work for guaranteed, fixed price procurements to complete environmental work and transfer BRAC sites to third parties.
- Remedial Design/Implementation Manual. Author of DOE guidance manual on conduct of streamlined remedial design and implementation activities.
- Star Enterprise Terminal. Senior technical consultant for Clean Sites, Inc. charged with evaluating the effectiveness of the product recovery system install at the Star Terminal in Fairfax, Virginia. The system is placed in a complex weathered sapprolite environment with fractured flow and anisotropy. Free product was well beyond the capture zone of the system when it was installed making it impossible to determine effectiveness through direct monitoring. As a consequence, a detailed hydrogeologic investigation was designed and implemented. From the results obtained, it was possible to determine performance on a semi-quantitative basis leading to identification of desired improvements.
- Remedial Action Assessment System (RAAS). Steering group member and beta tester for the Remedial Action Assessment System (RAAS) being developed for the U.S. DOE. RAAS contains artificial intelligence and data base functions to help select feasible remedial action alternatives and compare their likely performance at sites. Ultimately, RAAS aids the operator in preparing feasibility study reports. Mr. Dawson's role has been to help scope the effort to reflect the needs of the user community and provide practical guidance on applications.

- Strategic Plan Initiative at Rocky Flats Plant. Senior technical consultant to the Rocky Flats Plant charged with helping refocus environmental restoration efforts. The objective was to accelerate clean up activities, reduce costs, and optimize resource allocation. The thrust of the revised plan is to minimize procedural aspects, expedite action where the preferred alternative is clear and target those areas where complex issues remain and cost-benefit tradeoffs are ill defined. Initial results indicate that substantial savings are possible at the same time as early removals to quickly reduce existing risks.
- Spolana Chemical Works Feasibility Study. Managed the feasibility study for remediation of dioxin contaminated buildings and a hazardous waste landfill in Neratovice, Czechoslovakia. The \$250,000 study was challenging because of the high-risk levels of dioxins and chlorinated aromatics present and the state of disrepair of the facilities. A unique approach to explosive demolition and base-catalyzed dechlorination was devised to reduce exposure potential and eliminate toxic residues. Mobile facilities were recommended to provide a resource for cleanup of other facilities in the future.
- Remediation Technical Support Group Chairman. Chaired the Remediation Technical Support Group (TSG) for DOE's Arid-VOC Integrated Demonstration. The TSG reviewed all proposals for funding, recommended which to demonstrate, reviewed ongoing projects and determined research needs for the future on this high visibility, multimillion dollar effort. The group was considered one of the most active of the TSGs on one of the most successful demonstrations.
- Remedial Action Model Evaluation, Confidential Client. Managed an evaluation of a major Superfund site pump-and-treat system using numerical models to predict effectiveness. The evaluation was conducted in three phases starting with simple drawdown analyses and progressing to flow models, and transport models. This \$500,000 effort used the most sophisticated modeling technology available on a site with extremely complex geology. Current follow-on efforts are integrating the work with GIS databases.
- Pre CERCLA RI/FS, Richmond, VA. Managed the first major remedial investigation/feasibility study project in the United States addressing Kepone contamination in the James River. Individual tasks on this \$800,000 effort included comprehensive sampling of all segments of the environment, predictive modeling of contaminant transport, biological effects assessment, feasibility testing of remedial action alternatives, and development of program recommendations. This study included several unique new approaches including the use of models to predict remedial action effectiveness and development of a patented method to clean sediments.
- PCB Contamination Study, Waukegan, IL. Managed the first feasibility study at Waukegan Harbor. Tasks on this \$30,000 project included detailed comparative evaluation of dredging, treatment, and disposal elements of the required work plan. The approach employed became a model for subsequent Superfund work.

- State Cleanup Standards, State of Washington. Managed a \$100,000 effort to help develop and evaluate the economic impacts of proposed cleanup criteria in the State of Washington. Two separate sets of criteria were developed, one based on background concentrations and one on the capability of technology to achieve given levels of reduction. These were compared to criteria based on risk and existing standards. When the state selected the preferred concentration criteria, the costs of remedial action for representative sites were calculated to assess economic impacts. The results of this work were used to make a final selection of a tiered system of cleanup criteria.
- Consent Decree Negotiation, Confidential Client. Acted as senior technical consultant to a Fortune 500 manufacturer in negotiating a final Consent Decree and resolving cost allocation questions through the alternate dispute resolution process. In the progress of this work, a unique decision tree approach to termination of soil vapor extraction was devised and ultimately written in to the Decree. In addition, a low-cost alternative was developed for a non-time critical removal of chromium contaminated soil.
- Spill Response Data System, EPA. Developed the Oil and Hazardous Materials Technical Assistance Data System (OHM-TADS) and several innovative approaches to spill mitigation. The latter include floating mass transfer media and magnetically retrievable sorbents. OHM-TADS, the first data base aid for spill response is still in use. As senior author of the background report on hazardous chemical spills for the Report to Congress, Mr. Dawson outlined the original research agenda for EPA's Edison laboratory.

Environmental Management

In addition, Mr. Dawson has often been called upon to bring his environmental expertise to bear on difficult waste management problems such as:

- Advanced Sulfur Dioxide Control Process Waste Management. Managed a multiyear, \$3.5-million project for the Electric Power Research Institute to characterize and design waste management systems for solid wastes arising from the implementation of advanced sulfur dioxide control processes at coal-fired power plants. The project includes an extensive literature review, sampling and analysis of solid waste streams from five different sulfur dioxide control technologies (calcium spray-dryer, furnace sorbent injection, dry sodium compound addition, atmospheric fluidized bed combustion, and advanced coal cleaning), conduct of waste/liner compatibility tests on 20 synthetic membrane materials and a series of admixes, conceptual design of systems for each technology, case studies, evaluation of by-product utilization alternatives, a comparative analysis of regulatory programs in the 50 states, a lysimeter study on large scale disposal of spray dryer by-products, development of an unsaturated zone model for siting disposal facilities, and updating the flue gas desulfurization sludge disposal manual.

- Conceptual Design Regional Facility, Kaohsiung. Managed the conceptual design of the first regional commercial hazardous waste management facility in Taiwan. The \$2.5 million project resulted in full-scale designs for a rotary kiln incinerator, physical-chemical treatment unit, solidification module and secure landfill. Invitations to Bid on detail design of each unit were prepared from the conceptual design and were sent to prospective contractors. Because of limited data on waste generation, a flexible design was required to insure most wastes could be managed regardless of composition, and yet, excess capacity held to a minimum. Decision diagrams were developed to assist operators in selecting storage units and the optimum process chain.
- Regulation of Sludge Disposal, EPA. Managed a \$100,000 project for EPA to develop a methodology for evaluating applications for the disposal of municipal sewage sludges containing toxic contaminants. The risk-based methodology focuses on use of extraction tests and transport models to predict atmospheric and surface and ground-water contaminant levels for comparison to health criteria at the point of compliance. The resulting software code, Sludgeman, can be applied to landfills or land application sites to evaluate effects from disposal of any waste materials. A portion of the code was applied to predict the impacts on water quality of fallout from municipal waste combustion.
- Subtitle D Disposal Site Characterization, EPA. Managed a \$50,000 effort to determine the environmental settings of Subtitle D municipal landfills in the United States and subsequent risks posed by off-site migration of contaminants. This involved locating a stratified sample of sites and estimating groundwater and surface water vulnerability to leachates. A modified form of the DRASTIC assessment methodology was devised to provide rapid analyses using readily available sources such as county soil surveys and USGS topographic maps. The approach has been applied to over 1,000 sites to support regulatory impact assessments on landfills, RCRA Part C sites, oil and gas extraction sites, mines, smelters and refineries, utility waste sites and lagoons. Recently, the approach was used to support the National Pesticide Survey of drinking water throughout the U.S.
- Landfill Failure Model Predictions, EPA. Managed the development of the Post-Closure Liability Trust Fund failure prediction model to assess disposal site performance and subsequent demands on the fund. The \$50,000 project involved Monte Carlo simulations of climate patterns to determine the quantity and quality of leachate generated at Part A disposal sites throughout the United States. As a result of the findings, EPA chose not to implement the fund and subsequently changed proposed design and closure requirements for RCRA facilities.
- State Hazardous Waste Management Plan, State of Washington. Managed the \$300,000 study to help Washington State develop a hazardous waste management plan. The project was much more forward looking than previous efforts in that it evaluated capacity in the future considering such uncertainties as waste reduction, land ban effects, new air and water regulations, Superfund efforts, and changes in waste designation. A major portion of the study conducted by Mr. Dawson was focused on defining the best means of waste reduction and management of nonreducible residues

for the major waste streams in the state. The peer-reviewed evaluations of options are being used to advise industry of their alternatives as well as to evaluate state mandated waste reduction plans.

- Framework Development, Minnesota. Managed the \$100,000 effort to develop a hazardous waste management regulatory program for the state of Minnesota. Specific elements of work included preparing the criteria for defining hazardous wastes, conducting a waste inventory, devising an industrial waste disposal application review method, assessing economic patterns, and testifying at the administrative hearings. The work on waste definition preceded federal efforts and initiated the 100-fold factor subsequently adopted for the EP-Tox and TCLP tests by the EPA and other states. While industry initially opposed the proposed program, they were sufficiently impressed with the background logic that Mr. Dawson was subsequently hired to help redirect less defensible programs in other states.
- Program Development, Alaska. Managed a \$50,000 project to evaluate portions of all foreign and domestic hazardous waste programs and recommend a hybrid approach for the state of Alaska. The work was performed for a bipartisan committee representing all stakeholders in Alaska. A consensus was reached on final conclusions which satisfied all parties.
- Wastewater Treatability Studies, Albany, NY. Conducted bench-and pilot-scale studies and designed a rapid detention, powdered-activated carbon treatment process for combined storm sewage and treatment plant overloads.
- Proprietary Ammonia Removal Process. Developed and patented the copper-ligand amine exchange process for removal of ammonia from wastewater.
- Municipal Sewage Treatment, Cleveland, OH. Conducted pilot studies of advanced waste management processes at the Cleveland Westerly sewage treatment plant. Processes studied included GAC, precipitation-coagulation, and multi-media filtration.
- Selective Ion Exchange for Ammonia. Developed a software package to calculate loading and regeneration efficiencies for the clinoptilolite ammonia-specific ion exchange process for municipal wastewater.
- Industrial Wastewater Treatment. Managed the Water and Waste Management Section at Battelle overseeing projects involving bench-scale treatment of oil shale retort water, carbon supplemented digestion of sewage sludge, and cost analysis of process chains for TNT red water treatment.
- Technology Market Studies. Conducted market and impact analysis of two innovative waste treatment processes for metals and refractory organics.
- Input/Output Characterization of Wastewater Alternatives. Principal investigator in CEQ study characterizing sludge production, impacts, and costs and energy use associated with combinations of wastewater treatment processes and sludge disposal options.

- Landfill Leachate Characterization. Developed data on the differences between leachate quality for sludge-only and co-disposal landfills.
- Comprehensive Sewage Treatment Evaluation. Coauthor of a series of 13 reports comparing technology for each phase of municipal wastewater management. Individual volumes addressed liquid-solids separation, biological treatment, sludge dewatering, sludge disposal, nitrogen removal, phosphorous removal, and metal removal.
- Lime Sludge Stabilization. Designed and oversaw a pilot demonstration of the lime stabilization process for sludge treatment.
- Chemical Sludge Dewatering. Conducted bench-scale tests of a solvent displacement dewatering treatment for sewage sludges.

Permitting and Compliance

- Comprehensive Facility Compliance Audits. Managed a multiyear, \$3-million environmental compliance support program to assist Westinghouse Hanford Company bring Hanford Operations into full compliance with state and federal regulations. Over 50 tasks were assigned under the initial and follow on contracts. Specific assignments included:
 - Preparation of an implementation plan for the Hanford Environmental Management Program;
 - Development of regulatory flow sheets identifying the DOE orders, state and federal environmental regulations relevant to activities, facilities and waste;
 - Provision of 40-hour health and safety training for site personnel;
 - Development of plans for renovating vadose and saturated zone monitoring wells at Hanford;
 - Conduct of drilling oversight and well logging services for RCRA well construction;
 - Conduct of a series of complex environmental compliance audits for RCRA, CERCLA, TSCA, CWA and CAA at the N-Reactor, Fast Flux Test Facility, PUREX Plant, tank farms and burial grounds, B-Plant and other support facilities at Hanford;
 - Performance of a survey of Hanford laboratories to determine their ability to meet the needs of RCRA and CERCLA activities at Hanford;
 - Evaluation of modeling and remediation efforts for a plume of uranium in site ground water;

- Review of modeling plans for the proposed grout treatment facility;
 - Preparation of conceptual plans for best available technology (BAT) and best available radioactive control technology (BARCT) for mixed waste facilities; such as the plant laundry, the waste vitrification plant, and a facility to treat ground waters from development and purging of site monitoring wells; and
 - Analysis of regulatory issues affecting Hanford operations.
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- Generator Assistance, California. Provided services to the petroleum and auto shredder industries in reviewing and responding to proposed California hazardous waste regulations. Work included a detailed review of all drafts of the California Assessment Manual, comparative studies of alternative extraction tests, analysis of waste streams, evaluation of proposed landfill sites, testimony at administrative hearings, and preparation of permit application materials. As a result of this work, substantial changes were made in the proposed California program for defining hazardous wastes and auto shredder fluff was ultimately regulated as a designated waste which can be disposed of in nonhazardous landfills.
 - Environmental Compliance at DOE Facilities. Instructor on environmental compliance issues and a program for compliance attainment presented as part of a one-day and a four-day seminar on environmental issues at U.S. DOE facilities.

Expert Testimony

Mr. Dawson has served as an expert witness on such matters as the fate and transport of contaminants in the environment, standards of practice for management of oil and industrial chemicals and wastes, compliance with the National Contingency Plan, cost of corrective action, and allocation of responsibility among parties associated with release sites. He has testified in numerous jurisdictions throughout the U.S. and is recognized as an authority on the state-of-practice for handling oil and hazardous materials for the period 1940 through the present.

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Coauthor of annual WPCF literature review on Spillage of Oil and Hazardous Materials.

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PROFESSIONAL REGISTRATIONS AND CERTIFICATIONS

Professional Engineer, Washington #18253 (1979), California #CH 4446 (1988), Diplomate American Academy of Environmental Engineers (Board Certified in 1997)

PROFESSIONAL AFFILIATIONS AND AWARDS

Registered Professional Chemical Engineer (WA, CA)

American Institute of Chemical Engineers, Environmental Division

Past Editor, Journal of Hazardous Materials

Tau Beta Pi

Phi Lambda Upsilon

Stauffer Chemical Award

Diplomate, American Academy of Environmental Engineers

Recipient of the Army Environmental Center Coin of Excellence (2005)

SECURITY CLEARANCE

DOE, Q, Inactive

DOE, Foreign Intelligence, Inactive

DOD, Secret, Inactive

Continuing Education

Sampling for Defensible Environmental Decisions

Six Sigma Green Belt

EMPLOYMENT HISTORY

| | | |
|---------------------------------|---|----------------|
| TechSource, Inc. | Subject Matter Expert | 2019 - present |
| Hurricane Industries | Senior Technical Advisor | 2015 - present |
| GWD Consulting LLC | Sole Proprietor | 2014 – present |
| Sapere Consulting | Senior Consultant | 2014 – present |
| CALIBRE | Principal | 2004 - 2014t |
| Project Performance Corporation | Vice President | 1997- 2004 |
| EG&G Environmental, Inc. | President | 1994-1997 |
| ICF Kaiser Engineers, Inc. | Vice President | 1985-1994 |
| Battelle Memorial Institute | Director, Office of Hazardous Waste Management | 1969-1985 |

Trial and Deposition Testimony Over the Last Six Years

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